**EXERCISE 4D. PROBLEM TREE ANALYSIS**

|  |  |
| --- | --- |
| *OBJECTIVE*  **After this exercise the participants will be able to:**   * + - * Describe the causes and effects of individual problems and identify their root causes. | |
| *EQUIPMENT NEEDED*   * Pieces of A4 paper, note cards or small pieces of paper; marker pens, thin sticks or bamboo canes | *EXPECTED OUTPUTS*   * One or more diagrams of a problem (or problems), showing the root causes as well as the range of effects associated with each problem. |
| *TIME*  1-2 hours | *PREPARATION*   * Based on the problems identified in Exercise 4c, invite relevant specialists to attend the session. |

*Adapted from Galpin et al. (2000) and Anyaegbunam et al. (2004)*

*A problem tree or causal diagram enables farmers to identify the root causes of problems they face and to assess the importance of each cause. That allows them to identify solutions that will address the problems rather than the symptoms. Problem trees and causal diagrams are similar, but a causal diagram does not include the effects. This exercise focuses on problem trees. The starting point is the list of problems drawn up in Exercise 4c.*

*SUGGESTED PROCEDURE:*

1. Ask the participants to list the main problems they face that are related to soil and water management (this is an output from Exercise 4c).
2. Ask the participants to select one of the problems for one of the farming systems in the community. Write it on a piece of A4 paper and put it on the ground.
3. Ask the participants to think about the effects of this problem. For example, if “erosion” is the problem, the effects might include “loss of topsoil”, “declining crop yields”, and “silting of canals”. Some of these effects may already have been listed as separate problems in Exercise 4c.
4. Ask them to write the effects on cards – one card per effect. Ask them to put the cards on the ground on one side of the paper with the main problem. Use the sticks to show the connections between the problem and each of the effects. Write more cards and add them to the diagram to show further impacts of the effects (e.g., “flooding” as a result of “silting of canals”). Your diagram should now look like the branches of a tree, with the initial problem as the trunk, and the effects as branches and twigs.
5. When the group has finished the effects, move to the other side of the initial problem. Ask them to think why the problem occurs. For example, as causes of “erosion”, they might say “uncontrolled grazing”, “heavy rain” and “bare fields”.
6. Again, ask the group to write these causes on cards, and to put them on the ground with sticks to link the causes to the problem. You are now putting together the “roots” of your tree.
7. Ask in turn why each of these causes occurs. For example, they may say that the “bare fields” are caused by “lack of crop seed”, “lack of mulch” and “dry soil.” Get these ideas written on cards, and ask the group to add them to the diagram.
8. Again ask again why each new set of causes is happening. Continue adding more cards to the diagram to represent new causes. Make sure that each cause is written only once: you can add more sticks to link it to other roots of the tree.
9. When the participants feel that everything has been covered, step back and look at the whole diagram. Ask the participants to make any further changes they feel are needed.
10. Ask the participants to look at the cards at the outside edge of “causes” part of the diagram. These are the root causes. If the logic of the diagram is correct, solving these root causes will solve the other problems. Discuss possible solutions to these root causes with farmers. Which are outside of the farmers’ control? Which can they do something about? What solutions can they suggest? For example, for the root cause “poor soils” they might suggest “apply manure” or “grow legumes.”
11. Repeat this process for other major problems that have not yet been covered. Make sure they cover all the natural resource problems that have a high priority for the community.
12. Copy the final diagrams onto paper to make a permanent record.

*NOTES:*

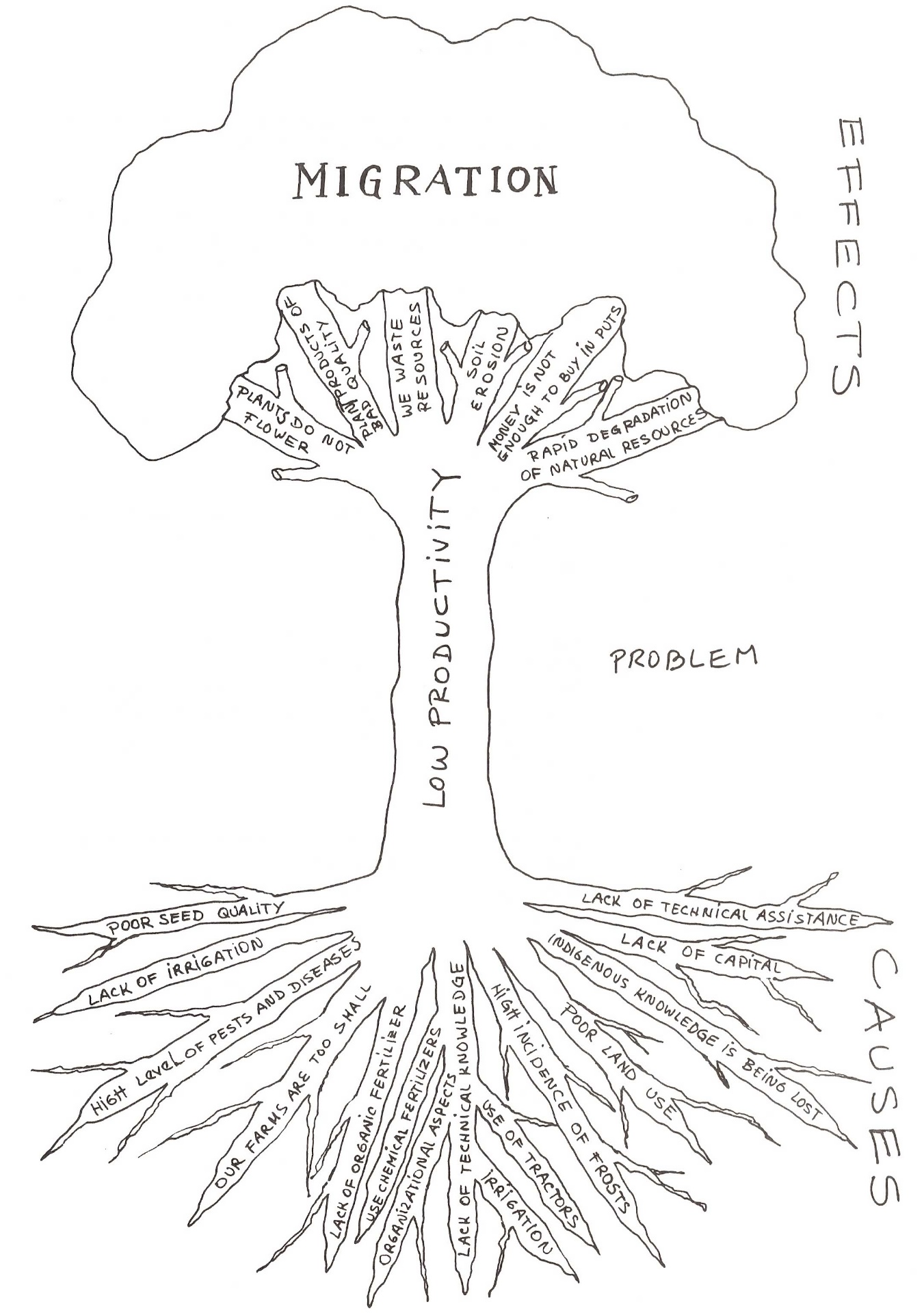
Instead of using cards and sticks, the participants can draw on the ground, a blackboard or a large piece of paper. However, that makes it more difficult to change the diagram as they are working.

Once the participants know how to do this exercise, you can break them into smaller groups and ask each to analyze one of the other problems. When they have finished, ask them to present their diagrams to everyone and explain their reasoning.

It should become clear that solving one problem will lead to resolving other problems too, perhaps even on other land types.

Many of the causes of low productivity stem from socio-economic, organizational, infrastructural, credit, and marketing challenges, Consider the causes of these problems too, but focus mainly on the technical natural resource issues that the farmer groups can tackle directly.

**Example of a problem tree**

****